

# **City Government, Citizens and the Sanitation.**

**By**

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An account of the measures to be effectively taken to create citizen awareness and elicit their cooperation in an effort to ensure a clean city and sensitizing the authorities about the occupational hazards faced by the sanitation staff as a result of the prevailing solid waste management practices in the municipal and urban local bodies of the state.

**Srinagar, January, 2014**

# CONTENTS

<b><u>Chapters</u></b>	<b><u>Page No.</u></b>
<i>Preface</i>	<i>i - vi</i>
<i>Introduction</i>	<i>vii - xi</i>
1. Status of solid waste management and its disposal.	1
2. Consequences on health and hygiene of faulty solid waste management practices -- Occupational hazards.	15
3. Additional risks due to mixing-up of bio-medical and hazardous waste with the municipal solid waste.	36
4. Measures to cut generation of waste by sorting, recycling and reuse.	49
5. Best value approach -- paying municipal fees to avail improved sanitation services by the citizens.	60

## **Annexures**

- Bio-medical waste( management and handling)Rules, 1998.
- Municipal Solid Wastes (Management and Handling)Rules - 2000.
- Hazardous wastes (Management, Handling and Transboundary Movement)Rules, 2008.

## **PREFACE**

The entire Jammu and Kashmir in general and valley of Kashmir in particular is a world famous tourist destination. The sanitation of our landscape its dwellings and the designated tourist resorts is one of the most important tasks that both our municipal bodies and the citizens have to perform. We therefore need to have a well thought of and worked out charter of actions that both the local body institutions and the citizens have to adhere to in order to preserve the pristine glory and natural beauty of our surroundings and the sceneries. A code of ethics is therefore necessary to bind us in our living culture if we are to sustain and promote the gains to our society both on the health as well as the economic front.

In the area of performing a routine sanitation job necessitated by the day to day operations of households, business establishments, transport services and the functioning of other social network like schools and hospitals the role of local body engaged sanitation workers is central to achieving the goal of a garbage free and clean localities in the whole of Jammu & Kashmir particularly within the cities, towns and the local body limits. The services of this workforce are therefore precious and vital to the performance of this important task and efforts shall have to be accordingly made to create higher levels of efficiency and output in this workforce. This is possible not only by equipping them with more efficient tools and training but also ensuring that their physical standards are

so good that they can cope up with the workload and are always fit to withstand the pressure of the toughness of work they have to perform round the week.

Besides attempting to minimize the hazards of sanitation as an occupation upon its cadres, the resistance against various occupational hazards can also be created with the help of a good diet, protection against infections and disease and better health care facilities to be made available internally through the institutional arrangements. Benefits like pay and other allowances shall have also to be made attractive enough to retain them at work. A strong workforce in sanitation field is a precondition to achieving the objective of a clean city. But as of now the position of the health profile of this workforce is dismal and the work efficiency and output as a result of this are a casualty necessitating building up of more pressure upon them which makes their health problems further difficult.

The Bio-medical and the hazardous waste coming out of hospitals and the factories needs a separate disposal and cannot be allowed to be mixed up with the municipal solid waste normally land filled for final disposal. These institutions as an ideal arrangement ought to have their own system of collection and disposal of the waste material in accordance with the existing law. These disposal facilities should be always in a workable condition as there can be no compromise whatsoever on the effective functioning of such facilities. Monitoring of these facilities particularly for ensuring that no

portion of this waste is brought out of the premises of these institutions, for disposal as part of the municipal solid waste, is a very important duty to be performed by the Municipal authorities. Otherwise any breach of this practice is going to lead to a failure of the entire municipal system and create serious problems of health and hygiene in the civic areas for the people as well as the municipal sanitation staff. As of now the level of compliance by these institutions is mixed as varying quantities of surgical waste, for example, are found littered around municipal waste collection spots in the civic areas, leaving a lot to be desired to ensure strict compliance with the waste disposal norms.

Education in the field of waste management has been an area in which municipal bodies thus far have been found remiss in the performance of their duties. The control on waste generation has to be the responsibility of those who originally generate waste which includes both the households, the business and the social institutions. Proper education in this area will bring about a sea change in the waste mix, its biodegradability and availability of huge raw material for recycling and reuse. Retaining usable waste like horticulture waste, etc., as manure for our kitchen gardens can lead to reduction of waste otherwise thrown out for disposal by the local body institutions. Thus increasing amount of public awareness in this area as well as creating conditions whereby the sorting of waste is possible at the predisposal phase itself will help make solid waste disposal practices safer, scientific

and manageable. A huge publicity and educational campaign is required to be launched to involve the people of all the ages particularly the school going children and the womenfolk in creating awareness and dissemination of information in the society.

The citizens, barring exceptions restricted to certain areas, are not used to paying for the services of the municipalities and other local bodies from the times immemorial deeming it as the bounden duty of the local body institutions to perform this duty without thinking of the financial arrangements required to keep the system moving. Although when similar services are outsourced by the households and the institutions at the time of holding private functions they have to pay huge amount of money to avail of services of various kinds for the successful conduct of the events. Society has therefore to be a partner in managing the affairs of local bodies connected with the sanitation and disposal of waste by bearing the cost of such services. We need to create awareness for such participation by making use of the foras like press, the media and even our religious institutions like mosques to propagate the essence of paying for the municipal services and cooperating in various ways with the institutions responsible for maintaining a certain standard of health and hygiene in the society. The society as a whole at present is a mute spectator to the failings of the municipal bodies in rendering efficient services in the area of sanitation and forget about their own role and contribution in making these institutions vibrant and financially strong.

During the course of writing this book I interacted with many foras particularly the prominent local body institutions like the Srinagar Municipal Corporation and the Directorate of Local Bodies, Kashmir, and received good cooperation from them as they were forthright in discussing the lacunas in performing their duties in the area of solid waste management for which I owe a debt of gratitude to them. Sh. Shafat Noor Barlas, IAS, the then Director of Local Bodies, Kashmir, explicitly went a step further to facilitate inspection of certain sites and offices of urban local bodies to study their functioning and interact with the representatives of the sanitation staff to know their problems which according to them are coming in the way of their effective working. And for this I am highly grateful to him. Jenab Hilal Ahmad Parray, IAS, Director Local Bodies, Kashmir, also extended his cooperation in further updating the information on certain urban local bodies for which I am equally grateful to him. The Executive Officers/Secretaries of Municipalities of Anantnag, Baramulla, Sopore, Pulwama, Pampore, Ganderbal and Pahalgam towns have extended all cooperation to me in arranging field visits for which I extend my heartfelt thanks to them.

I am also indebted to the personnel particularly Mr. Ishfaq Ahmad Pandit, Steno, JAKEDA, Science & Technology Department, who helped me to type the manuscripts and for offering important editorial comments while giving final shape to this book. I hope that this volume will go a long way in



creating an understanding of the problem of proper sanitation and to achieve a breakthrough in the efficient management of solid waste by the municipal bodies in Jammu and Kashmir and also address the problems with which the sanitation staff of these municipalities is afflicted with to help ameliorate their lot. It will also create conditions to elicit maximum cooperation from the citizens in ensuring cleanliness of the places that we are living in, and to be a partner in sharing the financial burden on account of financing the sanitation work of the Municipalities.

SRINAGAR,  
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## **INTRODUCTION**

The objective of efficiency in garbage disposal in the process of cleaning the civic areas has been at the core of our local bodies. But our level of efficiency is always limited by the availability of resources as well as the level of access to the available technologies. Most of the work in this area especially at the micro level is performed manually and therefore the services of a huge number of sanitation workers are made use of to perform this onerous task on a day to day basis.

Advanced societies who owing to no dearth of resources as well as use of modern technology and efficient tools and equipment have achieved higher levels of efficiency in garbage disposal and in protecting the health of their sanitation staff from all the possible occupational hazards. In fact owing to availability of tremendous pool of resources the local authorities in, for example, the European countries have been constantly improving upon the existing practices of solid waste management and cleanliness of civic areas and have as a result evolved the “Best Value Approach” in sanitation under which citizens contribute by paying higher fees towards civic bodies and in return get quality services at an extended scale thus managing the health and hygiene of their citizens very well as per international standards.

During the course of one of my visits to some of the local body offices and their garbage disposal sites in England in 1997-98 it was found that the existing standard of sanitation is the result of a united and common approach to the problem by the

citizens and the local authority officials as well as the sanitation workers engaged for the purpose of waste collection and disposal by the local authorities. The practice of waste generation by the citizens and the institutions is subject to uniform scrutiny at the household/institutional level and the waste is properly placed in bins separately meant for biodegradables, tin, glass and plastics which are non-biodegradable and recyclable. Thus the collection of waste by local authorities is streamlined. This practice is repeated for collection at predestined transfer stations which are there in each big locality where things which cannot be placed in a dustbin due to oversize are received for proper disposal. This practice not only helps in sorting out the waste but also fetches huge income to the local authorities by selling the recyclable waste to industries who use it as raw material right at the collection point, thus reducing a huge component of waste from going to the landfill or incineration for final disposal.

The unsafe method of handling the waste during our day to day practice of waste collection has serious occupational hazards associated with it for our sanitation staff to face. Non use of face masks, gloves, headgears and proper mechanical devices for lifting the garbage results in establishing contact of the personnel with infectious material causing risk of succumbing to the adverse impact on health. Sometimes carrying the infection to one's family at home by not following the safety norms like changing clothes and shoes while leaving the workplace at the end of the day, is yet another risk that the

family of the sanitation worker has to face. This puts the whole family of the sanitation worker at the same risk as the worker himself. The dietary and the medical support to resist this infection being already low leads to further poor state of health affecting the productivity levels of the workforce and the ultimate performance of the entire municipal body on ground. Low standards of sanitation are therefore a direct outcome of the risky and defective practices of handling of garbage and the lack of safety measures. These risks are accentuated when hazardous wastes like industrial, chemical and hospital waste have made it to the municipal waste dumps and are handled by the sanitation staff without any special risk mitigation measures. Owing to the lack of monitoring and care by the supervisory staff both at the industry, hospital, factory and the municipal body level, a contravention of rules governing the management and handling of Bio-medical and hazardous waste results putting the lives of the sanitation staff at a huge risk.

A very strict supervision of waste disposal mechanism at the institutional level is therefore required in order to comply with the safeguards necessary for storing , packaging and the disposal of waste. Adherence to the rules has to be made very stringent in this regard and pollution control agencies have a huge responsibility in this regard otherwise already immense damage has been done to the health condition of our sanitation workers who have been handling the municipal

waste which contains a mixture of non-municipal waste as well.

Surveys conducted in this regard between 2002-2005 in the Kashmir valley, particularly in District Srinagar have revealed huge incidence of chest diseases, eye infections, stomach disorders, heart problems, backache/disc and urinary track infections among the scavenging community directly dealing with the collection and handling of municipal solid waste. Lack of health care facilities at the institutional level ,other than the ones available at the government run community health centres and hospitals, deprive this category of municipal workers in availing of timely health cover with the result their diseases go unchecked. Ultimately the average life expectancy at birth of these employees is comparatively less than that of a worker of the same class in non sanitation areas. Working hours per day as well as the level of punctuality of these workers have also become a casualty affecting their presence at the workplace.

Over a period of last about more than 15 years the cleanliness of civic areas has become a casualty affecting the overall hygiene of our habitations in these civic bodies as on the one hand more and more areas are brought under the jurisdiction of the municipal bodies, which is consequent upon an increase in population also, but a proportional increase in the engagement of sanitation staff is not taking place. As a result of this there is a huge sanitation gap in the coverage of areas

by not offering sufficient sanitation services in each municipal area. Huge attention needs to be given to plug loopholes in the sanitation practices in these areas. Immense public awareness and cooperation is required to be elicited for raising public participation in the municipal body's working to boost its performance as well as infuse accountability. The principle of polluter to pay has to be widely recognised to increase the level of citizen's sense of responsibility and imbibe law abiding culture in the civil society. The level of involvement of the civil society in the working of the municipal bodies has to grow to such an extent that the office bearers or the functionaries of the municipal bodies develop a deep sense of responsiveness to the citizenry. This will happen only when the citizens are disciplined and are in the habit of availing paid services of municipalities. This will automatically raise their level of expectations about the role and contribution of civic bodies towards ensuring neat and clean areas within their local limits.

A programme oriented working of the municipal bodies, incorporating an integration of the sound solid waste management practices, the citizen's voluntary support and the willingness to pay for the services availed and strict observance of anti-pollution laws by corporate bodies, health institutions and the households, which will ultimately lessen the workload and the risks to its sanitation staff clearing the way for ensuring a clean city with safeguards for health and hygiene, are among the key objectives of writing this volume the details of which will be discussed in the chapters that follow.

## **CHAPTER -1**

### **Status of solid waste management & its disposal**

The system of collection of waste in the municipal areas of Jammu and Kashmir is not well regulated as neither the state nor the civic body institutions have issued any guidelines for the households in view of ruthless throwing of waste. Although community dustbins are placed at fixed points in major civic localities but households use both these dustbins for depositing the waste as well as throw waste haphazardly, without any scheduled interval, at any place of their convenience. As the waste could be seen both heaped up in the dustbins it is simultaneously littered all over the lanes and the streets without any restriction of time and place. Civic bodies therefore arrange both the mechanical lifting of waste from the dustbins as well as from the open areas through the process of broom sweeping and make use of hand carts and wheel barrows to carry the waste to the nearest dumping site or the community bin for mechanical lifting.

The process of waste collection is therefore a continuous process and streets particularly the lanes and bylanes in inhabited areas seldom look clean as there is virtually no end to throwing of waste by the residents. Despite of pressing the entire sanitation machinery into operation the workload is such that at the end of the day there is still some unlifted

garbage visible on the roads as well as the dustbins. With the quantum of waste actually lifted for final disposal by landfill, the figures in respect of some selected municipal bodies on a day to day basis in Kashmir valley are given below, the picture thus emerging suggests that the workload is massive, challenging and unrelenting.

**Table - 1 \***

Showing the amount of garbage lifted on a daily basis and the availability of sanitation staff/against the requirement, worked out on the basis of the population

S.No.	Name of local body	Garbage lifted	Sanitation Staff/Req.**	Population
1	Srinagar Municipal Corporation	450 MT's	2700/4800	12 lac
2	Ganderbal Municipal Committee	16 MT's	35/88	22,000
3	Pampore Municipal Committee	17 MT's	45/86	21,600
4	Pulwama Municipal Committee	15 MT's	34/69	17,300
5	Anatnag Municipal Council	50 MT's	341/428	1.07 lac
6	Sopore Municipal Council	30 MT's	193/274	68,400
7	Baramulla Municipal Council	45 MT's	140/335	83,700
8	Pahalgam Municipal Committee	20 MT's	60/96	24,000

\* Source: Field Survey May, 2013.

\*\*Sanitation staff requirement of 1 sweeper for 250 persons as per national standards.



Whereas one of reasons for an increase in the generation of garbage in the municipal areas is an increase in population leading to an increase in the number of households/families; an increase in the consumption levels, which is directly linked to the standard of living of the people, also adds to the increase in the generation of waste. Since the workload is very much on a rise the municipalities have to direct their efforts not only in the area of waste collection in a time bound manner, but also towards reduction of waste. This is to be done by launching a sustained awareness campaign coupled with a major policy initiative to impose curbs on the reckless throwing of waste out in the open except by use of community bins upto the appointed hour only. A mix of policies is therefore necessary to be introduced whereby the citizens have the responsibility to store the waste in their houses in the municipality supplied bins or their own storage dustbins and take them out for emptying only at an appointed hour or by a certain time say upto 8 AM in the morning so that for the rest of the day throwing of waste outside the houses is completely banned and punitive action is taken by the municipality officials if any person or institution tries to violate this norm and thereby deface the places cleaned. This system has the advantage of enabling the municipal officials to assess the total workload on account of waste generation per day and at the same time ensure that the lanes and bylanes of the city give a clean look during the major portion of the day.

Another very popular and commonly in use waste reduction measure as part of an effective policy of solid waste management is strict method of sorting of waste. As part of this policy we shall have to give clear cut instructions to the households as well as the institutions against throwing the non-biodegradable waste like plastics, iron, tin, glass, etc., in the community waste bins as these should be separately disposed off/handedover to the scrap vendors who are generally looking for buying this kind of waste. The municipalities can by placing separate community bins for depositing non-biodegradables themselves introduce a system of sorting the waste prior to its transfer to the site reserved for final disposal by landfill and thus add value to the collection of waste by transferring a portion of it to the industry for recycling and re-use as raw material. A network of transfer stations can be set up by the municipalities at the major locations in the civic areas where all the waste will be first collected, we ought to have a good number of such transfer stations to cover the entire municipal area during a day, so that sorting of waste is done by the sanitation staff separating non-biodegradables from the bio-degradables and the portion of waste meant for landfill is separately packed and dispatched to landfill site.

Whereas the non-biodegradables like plastic, tin, cardboard and glass can be straightway sent to the industry as scrap/raw material and some revenue generated in the process, the bio-degradables can be further subjected to the process of pulverisation which helps partially reduce the volume of the waste by breaking it into pieces. This process makes the landfill easier and manageable as in this manner comparatively lesser trench space is required to landfill the waste. After the waste

is subjected to sorting and pulverization at these transfer stations the waste due for disposal by landfill is transferred to the landfill site in smaller containers thus facilitating a more environment friendly handling of waste. This would be in sharp contrast to the existing practice of transporting garbage in open trucks allowing part of it to fly enroute the landfill site as well as spread of bad odour through whichever way the truckload of garbage passes. This gives a bad impression of the civic body's ability to adopt a more scientific and environment friendly way of working. The present system of transportation of waste done in open carriages creates fresh problems of sanitation all along the route which is itself a reflection on the management system of waste disposal by the municipalities.

Municipalities have a big job educating the households and the commercial organisations to use different colours of waste bins by installing separate dust bins at major locations side by side for depositing biodegradable waste like agriculture/horticulture waste, paper and cloth, etc., in green dustbins and depositing non-biodegradable waste in separate dustbins with red colour. This would also help save time and effort at the transfer stations set up for recovery and sorting of waste. Other categorical instructions to the households as well as the commercial organisations would include to desist from throwing voluminous waste like dismantled material, dead stock like broken furniture, beddings, unserviceable electronic gadgets like refrigerators, etc., which should directly be brought to and delivered at the transfer stations as the capacity of the roadside bins is always limited. This way the bins would not get filled up to the brim and remain in service

for longer durations during unavoidable situations when emptying is delayed. Since most of this kind of voluminous waste can be reused or recycled by the industries therefore such scrap can be outrightly sold to the industry and some revenue earned out of it, which would be another good reason to enforce its delivery direct at the transfer station.

In the European Countries we have very tough environmental laws against dumping of waste on the roadside or at any other open space and the only option for those who bring this waste out of their premises is to bring the same directly to the transfer station and hand it over to the incharge. Recycling and reuse of certain category of waste is economically very important as it not only reduces the waste management costs but saves some basic raw material for the industry where these dead stocks are put to use as raw material. This delays exploitation and use of fresh materials/natural resources also fulfilling the basic objectives of sustainable development. These practices are therefore highly eco-friendly and should be encouraged in the society by the local authorities by properly educating the people and by giving all the required assistance to them to make their task easy.

The practice of dumping the waste at the site reserved for the landfill is the most commonly followed solid waste disposal practices in Jammu and Kashmir. Though the system of landfilling the garbage is a very tough and a purely scientific

exercise but having completely lost sight of following sound practices in landfill it has led to the problems of maintenance of landfill sites which in the past has given rise to numerous complaints and the grievances by the population living in the vicinity of these landfill sites. The scourge of dumping the waste in the open where it remains for days, and sometimes for weeks and months altogether, before being land filled, gives rise to foul smell in the area, mosquito breeding, kite flying as well as mushrooming of stray dogs and rats which thrive on the waste containing a good mixture of unconsumed food material. The landfill sites throughout the J&K have therefore emerged as nuisance spots for the surrounding habitations as well as an environmental hazard. This is purely because the rate at which garbage is being landfilled at a given site is far less and slower than the rate at which the garbage is being dumped at the landfill site after lifting from the civic areas. Sometimes there are mechanical breakdowns as well as delay in the supply of earth required to close the trench after the garbage has been filled in it, resulting in stoppage of landfill operations and the consequent heaping up of waste at these sites. Sometimes staff strikes or climatic conditions bring the landfilling operations to a halt for days and weeks together. The monitoring and control of operations at such sites is often weak and the staff deployed on these sites does not stay on the site for longer hours each day and skips to other locations to avoid an unhealthy, filthy and foul scene which at times becomes intolerable for the staff to stay put longer. Accordingly to remedy this situation a considerable

effort is required to be undertaken to manage these sites more hygienically and scientifically by striking a right balance between the supply of garbage and preparations for land filling the same instantly. Advance arrangements are required to be made to keep trenches in readiness to landfill the garbage which is even in the pipeline so that the dumping site is kept free from retention of garbage in the open to prevent outbreak of foul smell and growth of bacteria contaminating the air around.

Investment in the garbage dumping sites at present is also insufficient which is one of the reasons that mismanagement of dumping sites is so common and the situation there is always out of control. Staff rooms or washroom facilities are not adequately made available at these sites and therefore personnel posted there encounter huge inconvenience which dissuades them from continuing to work longer hours as required. The system of preparing the trenches for landfill is so faulty that no amount of civil engineering work goes in the preparation of trenches of the right depth and design. In fact no civil works are undertaken like laying of a raft in the bed of the trench to prevent the garbage mixing up with the groundwater particularly at the time of rains when the rain water percolates down through the garbage into the groundwater washing leachate as well as pollutants in to it leading to a large scale water contamination. Engineering solutions in the preparation of a scientific trench are required to be availed and made use of whatever be the cost to remedy

this situation. Besides laying of a raft a high density polyethylene liner (HDPE) is to be used to cover the sides so that any seepage of the garbage mud into the walls of the trench is prevented to allow a smooth biological degradation of the garbage.

In Europe and other advanced countries landfill sites are properly designed and a fair amount of technology goes into its making so that the same are quite safe as not to cause any damage to the water quality beneath in the subsoil. The trenches are properly closed with a HDPE covering so that any flooding due to rain water does not lead to a seepage bringing the pollutants in the garbage in contact with the groundwater. The process of landfilling is properly supervised both by the local authorities, the private NGO's, who own these landfill sites, as well as the Environmental Agency officials whose responsibility it is to enforce a complete adherence to the environmental laws of the land. This also takes care of the concerns of the surrounding population, whose health and hygiene are otherwise at stake, and who are constantly opposed to such operations by the municipalities in their vicinity. A writ petition filed in the High Court by the people residing close to the Achen dumping and landfill site in Srinagar, owned by the Srinagar Municipal Corporation, is a case in point. Since Achen dumping site is the lifeline of SMC all efforts required to improve the environmental status of this place should be made and the site managed scientifically.

Landfill system of garbage disposal is not the only available method to manage the solid waste for final disposal. But of the available technologies this seems to be the one that is simple to follow and economical. Lately in the western countries as well as in India the conversion of garbage into compost or even making use of garbage for gas/power generation are some of the environmentally safe methods of garbage disposal. These technologies are available in the sub continent and though costly have not been tried over here. The system of converting garbage into compost or fertilizer is more economical of the remaining two as the generation cost of producing power/gas by setting up of garbage based plants is very very huge. Not only is the initial investment very high but output value in terms of the quantity of gas/power generated is less.

In respect of the pelletization of the garbage through the setting up of garbage based fertilizer plant a huge process of sorting of the garbage is required to be undertaken to separate all sorts of non-biodegradables including the wood and the dismantled building material. This is then followed by the drying of the garbage mechanically and converting it into pellets which has proved to be a very effective organic fertilizer and can be safely used in agriculture for nurturing all sorts of crops to help enhance productivity. This technology involves a one time investment and further costs in the process of production of fertilizer is power supply only and the



other raw material which is the garbage itself is available free of cost in the normal course of working of the municipal sanitation staff. This method also saves a lot of money , effort and the adverse consequences on the environment owing to landfill system of garbage disposal. The cost of power and other attendant costs are more than compensated by the sale proceeds of fertilizer which has a ready market in agriculture, horticulture and vegetable cultivation so common in J&K and profitable as well.

This method of garbage disposal suits us as ours is essentially a Tourist State and any sound solid waste management practice should be welcome both in terms of retaining cleanliness of our surroundings as also to protect our water bodies getting contaminated which otherwise are at a huge risk owing to landfill system of garbage disposal. Kashmir province in general and Srinagar city in particular has a good number of water bodies which are key to the promotion and attraction of tourism in our state like Dal Lake, Nagin Lake, Anchar Lake, Khushal Sar, River Jehlum and connecting canals like Chunti Kohl, Sunri Kohl and Kata Kohl all of which need to be strongly protected from any kind of pollution to their waters for which a major breakthrough in the form of achieving an environment friendly system of garbage disposal is imperative and most welcome whatever the initial cost may be.

Given the modern concept of Regional Environment Management Systems (REMS) which calls for assessing the environmental requirements based on the geographical features of an area, rather than on the basis of a population grouping or a settlement of habitations, to actually gauge the risks involved and requirements of that area to prevent any damage to the environment. Under this model of Environmental Management System the requirements of protecting the environment are dictated by the local Geography and its ecological features and main environmentally sensitive objects attached to the landscape of that region like lakes, waterways, forests, hillocks, gardens, etc. Therefore the need to protect and safeguard these physical features or environmental treasures of a Region are the basics for developing a model of Environment Management System, which helps to determine the extent to which each activity by the stakeholders like households, corporates and the local authority (the municipality) can be permitted, both on the side of causing the pollution as well as on the side of steps required to safeguard the environment, including any remedial measures that may have to be taken if any damage to these assets has already taken place.

For example taking the district of Srinagar and its surroundings like Ganderbal and Budgam areas as one environmental region on the basis of similarity of the topography and other physical features the stakeholders will have to first assess the present status of the environment of this region and then decide about

the role and responsibility of the stakeholders to safeguard its environmental quality. These decisions may be about the role of households in the area of generation of the solid waste, the role of local authorities in its collection and final disposal and the role of corporate, in choosing production lines which do not release emissions into various mediums beyond the permissible levels and do not make use of materials locally available which damage the given topography as well as the forest cover. The corporates may have to choose production lines which instead protect the local environment even if it may lead to a higher cost of production. This way they can claim to be manufacturing green products which have the labelling and the reputation of products coming from green areas to gain access to international markets facing stiff competition and command a higher price on being branded or labelled as green products. Therefore in sensitive area like ours which is known for its environmental fragility, an integrated approach to the protection of environment is called for by drawing up a road map towards environmental protection both in the short run and in the long run by assigning the roles to each of the stakeholders in the process. This kind of modelling presupposes giving due publicity to the environmental risks attendant to each activity by the stakeholders to keep that activity within reasonable and permissible limits and to solicit the cooperation of the concerned in evolving a joint strategy to preserve the environment. This is particularly true of a place with a fair slice of population consisting of tourists or migratory labour who

do not have much knowledge of the environmental requirements or sensibilities of a particular area which therefore calls for a genuine publicity to be given to these issues all over again and again, ensuring fullest compliance and cooperation from all the concerned. A strong policy of polluter to pay also needs to be adopted to vouchsafe the damages resulting from any unavoidable activity so that not only a higher amount of tax, fee or fine is levied to discourage that activity but also compensatory works are sought to be undertaken by the polluter in the region to restore the damage done.

Each region on the basis of philosophy of Regional Environmental Management system will have its unique priorities to protect the environment based on the environmental management model of that region which will be dictated by the physical and environmental features of that region. Therefore homogeneity of approaches and policies to safeguard the environment of various regions and sub-regions is no longer possible as each region shall have to workout and assess its own advantages as well as shortcomings so far as its existing environmental setting is concerned.

The state has therefore an important role to arrange for carrying out GIS modelling of each such region and provide the requisite feedback on the environmental setting and status of each region on the basis of which the local authorities will

frame policies and constitute committees of the stakeholders to carry out regular monitoring of the discharge of pollutants and fix responsibilities and define the steps required to be taken in the area of functioning of various institutions who have a role in impacting the environmental health of the region.

One of the key areas in which attention is required to be devoted so far as the role of municipalities is concerned is to determine the size and the strength of its sanitation staff viz-a-viz the workload and the population of that municipal area and how better they are equipped and trained to deal with the garbage collection and transportation to reach an optimum level of their utilization. This takes us straight to the subject of safety of the sanitation staff and their efficiency which will be discussed in the chapter that follows.

## **CHAPTER 2**

### Consequences on health and hygiene of faulty Solid Waste Management practices -- the occupational hazards

The litter collection from almost all the municipal areas of the state is done manually as far as its dumping at the nearest collection point is concerned. As mechanical lifting is possible only from these points which are accessible to municipal load carriers and garbage cum earth moving machines known as loaders, therefore a sizeable number of sanitation staff is engaged for broom sweeping, litter collection and lifting of garbage in wheel barrows from the inner lanes of residential areas upto the main road from where it is mechanically lifted and transported to the garbage dumping/landfill site. Since the practice is repeated everyday by every scavenger or the sanitation worker therefore he or she is at a constant risk of being affected by the hazards of garbage handling if all necessary safety measures are not adopted to avoid any direct contact with the garbage.

One of the major sources of infection is the dust that results out of broom sweeping practice. Majority of the scavengers

and other sanitation workers do not make use of masks, headgear and the spectacles to escape from inhaling the dust. This is the most common occupational hazard that a sanitation worker faces and heavily suffers from its brunt at the workplace. This equally affects the passers by who however can afford to run away from the scene, but the scavenger is face to face with the problem of dust-inhaling. The incidence of this occupational hazard is quite phenomenal as per the survey carried out by the author in a sample of 500 families covering about 3.5% of the 15000 odd families of scavengers connected with sanitation activities of various municipal institutions of Kashmir in 2004-05. The results of the survey show that the dusty working conditions have led to cough and bronchitis ailment affecting 165 workers which works out to a huge percentage of 33% of the total households surveyed. This is a precarious situation making the condition worse for the families who, given their low income levels and poor intake of diet, are not capable of availing the required medical facilities of their own. This has affected their normal health condition as well as their performance at work. The efficiency with which they could otherwise perform their duties are accordingly compromised.

The scavengers and other sanitation staff are to handle cart loads of garbage to transfer garbage from the lanes and by lanes in the habitation in civic areas upto the collection points from where mechanical handling and transportation to landfill dumping sites is practically possible. This job day in and day out puts a huge strain on their back as also a certain body

posture is to be all along maintained by them during lifting and carrying of waste in wheel barrows. This has been the cause of back ache and disc prolapse in them and the survey in question reveals an incidence of 27.40% among the families surveyed indicating that after lung problems this disease is the second largest one affecting the municipal scavengers in the municipal bodies of the state. This particular disease unlike any other disease is so problematic and of huge consequence to the service delivery that it renders the sanitation staff quite incapable of handling the workload. The sanitation staff that suffers from this disease develops a phobia against carrying of waste in wheel barrows and as a consequence of this they get tired soon and once they feel a state of fatigue they run away from the work place as soon as they start. The scavengers' efficiency is seriously affected and his output and performance suffers. This is reflected in terms of the shabby look that the habitations wear in terms of sanitation as huge quantities of waste remain scattered in these areas during the day as un-lifted garbage. Whereas on the one hand the turnout of the sanitation staff at work site on a daily basis falls, the public satisfaction levels about the municipal body's performance also dwindle reflecting badly upon its image as an effective organization in ensuring health, hygiene and happiness of its citizens. This also acts as a disincentive to the citizens to cooperate with the municipal body's initiatives in sanitation and other areas and also to pay the sanitation fees regularly.



The municipal authorities usually resort to the pressure tactics in the garb of with-holding salary or an outright termination of its absentee sanitation staff to enforce their full attendance. Sometimes fines are also imposed for lack of punctuality without going into the issue of improving working conditions for the scavengers. This state of affairs forces the sanitation staff to succumb to the pressure which ultimately injures their psyche. While this shortcut policy to run the affairs of the municipal bodies has been going on for a long time, it has unfortunately reflected itself in making relations between the workers and the administration tense and consequently affecting the writ of the local municipal bodies on the sanitation management of civic areas. As a result of this all scavengers have been resorting to recurrent hartals to demand better wages and working conditions. A demand for reduction of area of operation for each person on duty to lessen the work load on a daily basis is being increasingly made which calls for increasing the availability of the scavenger staff to bring it in tune with the national norm of one scavenger for every 250 persons in a civic area. Absence of sufficient health care support like free medical aid has ultimately made the staff particularly the elderly ones suffer from hypertension and some of them from heart ailments as well. The instant survey of the designated scavenger households puts the incidence of both the heart ailments and hypertension at 13.7% each making it as the biggest challenge to the survival of the scavenging staff. This type of the occupational hazard has been found responsible for cutting short the life span of the

scavenger who dies young as compared to members of rest of the civil society and whose average life span is around 58 years which is less than any other citizens life expectancy at birth. This shortening of the life span is directly attributable to the occupational hazards of the scavenging community together with their low levels of income, low intake of quality food and lack of medical facilities. A package of compensatory measures especially designed to target this workforce in view of the risks associated with the nature of this work in the sanitation wing of the municipal bodies in the state, is therefore badly warranted to retain them on the job.

A natural and a widely prevalent medical fallout of the occupational hazards faced by the scavenging community is seen upon their off-springs who are born weak, underweight and sometimes with deformities. Their growth is also slow and ultimately remain stunted and look too small than their actual age due to a weak health and a shrunk physique. By the very weak physical standard as well they appear to be unfit for this tiresome work they are to perform on a daily basis. This is quite a worrisome picture as there is already a shortage in the overall supply of this kind of work force as any other community or the civil society as a whole cannot supply such a work force, the sanitation being the work which historically this scavenging community only has been performing. Thus the state as well the municipal authorities have a vested interest in investing in the health improvement schemes of the scavenging community both by providing effective medical facilities, special financial assistance to help improve their food

intake and living conditions. More particularly it is of paramount importance that we make a resolve to improve the conditions of their work by providing all the required safety equipments, dress material and thereby make the garbage handling practices more safe and scientific. Area of operation for an individual safai karamchari needs to be adjusted to the national norms so that we can introduce an element of humanity in the management of this cadre and expect a corresponding increase in their output at the workplace resulting in a more neat and clean city as an outcome of these measures.

In the absence of any investment of this sort and specific arrangements made to address the issue of occupational hazards of which this community is a victim, a kind of human rights violation is taking place at the hands of the municipal bodies who have been engaging them, having far reaching implications upon the scavenging community as well as the municipal administration as a whole. Since the results of the survey done in 2004-05 confirms that a total of 74% of the community's workforce is afflicted with one or the other disease as a fallout of the sanitation occupation he or she is connected with, therefore some urgent and special dispensation is required to be created within the institution of local bodies to promote their literacy, dwelling conditions, reduction of debit profile, reduction of unemployment of other members of their family to help improve their overall economic position as well. Health care measures to be adopted on a permanent basis, removal of wage anomalies

and sanction of a suitable risk and overtime allowance could be some key areas to help make their lot better. Keeping in view their most valuable contribution to the health and hygiene of the society, some independent NGO's also need to adopt special programmes and schemes aiming at the overall upliftment of economic condition of this community.

The following Table-2 gives an overview of the occupational hazards encountered by the sanitation staff (scavengers) during the course of handling of garbage in various municipal areas.

**TABLE-2\***

Table showing the incidence of common diseases among the sanitation workers as a result of faulty solid waste handling practices in J&K

Sl. No.	Name of the disease	No. of workers affected	As percentage of total households surveyed
1	Chest disease/bronchitis	165	33%
2	Back ache/disc	137	27.40%
3	Heart ailments	69	13.80%
4	Hypertension	68	13.60%
5	U.T.I	34	6.80%
6	Stomach/indigestion	24	4.80%
7	Others	03	0.60%
<b>Total</b>		<b>500</b>	<b>100%</b>

\* Source : Field survey 2004-05

We have seen from the Table-2 above that by and large all the scavenging families visited have been impacted by the disease in one way or the other. Particularly the working class who are engaged by the municipal body are invariably suffering from one disease or the other. The diseases that have been identified are the diseases that are associated with the working practices and therefore if any remedial measures are adopted that would mainly have to include addressing the issue of improving the working conditions on ground. The field functioning needs to be regulated in such a manner that the sanitation workers are made to perform their duties most efficiently without compromising health safety norms to prevent recurrence of facing any health hazard. This also calls for making the supervisory staff fully conscious of the risks involved in the way the job is undertaken. This way we can get the best in terms of output or performance from the sanitation staff and maintain a fair standard of health and hygiene in the municipal areas that we are administering.

One of the major non-monetary tools of improving the performance of our sanitation wing is to impart them awareness trainings for adopting best practices in the performance of their duties on a daily basis. Sanitation wings of all Municipalities consist of staff with a meagre education as well as lack of ability to read and write. They have the least scientific sense and therefore need to be told plainly about the

dangers of various kinds of existing practices in handling the garbage. They quite often feel no harm in handling garbage with naked hands and feet and do not differentiate between hazardous and simple municipal household waste. Any prick or injury may result in a serious kind of infection like tetanus or septicaemia or swelling in the portion of the body that is infected and cause enormous damage to their already weak physique.

Sometimes the sanitation workers try to handle the waste with the objective of sorting out re-usable objects or things that may have some value in the market and in the process incur a huge risk of getting infected or injured and even risk the safety of one's family. Explosions in the past have taken place while sorting out the waste and inflicted fatal injuries to the rag pickers. During this process they separate some material and take it to their residence for offering the same to their family owing to abject poverty. In fact by doing so they take disease to their home as the objects they lift have a high degree of infection or even radioactivity, which therefore may turn out to be the most destructive of all. The trainers therefore need to create requisite awareness among the sanitation staff to ensure that they desist from all such practices which would compromise their health and the health of their family members. Removal of objects like non-biodegradables and recyclables from the heaps of garbage should be properly allowed to be carried out under the spirit of Municipal Solid Waste (Management and Handling) Rules, 2000, and the

Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 so that a proper protocol is followed by those involved in sorting the waste to avoid damages to life and property as well as the environment. The same procedure should be made applicable for sorting of municipal waste by private agencies which will serve the twin purpose of protecting human lives and earning revenue by licencing this practice. Over the years experience has shown that this practice is becoming increasingly profitable and therefore justifies imposition of a licence fee on this activity.

Workers joining this profession as staffers of the municipal bodies for the first time need to be given proper training about the safer ways of handling the garbage or operating on a dumping site. It has been seen at the time of recruitment of safaiwallas (sanitation workers) that owing to unemployment the members of non-scavenger families also apply for scavenging jobs and get recruited. Their risks are the highest as they do not have any idea of how to steer clear of the dangers encountered during garbage handling. Detailed and exhaustive demonstration of various risks and hazards is required to be given at these trainings to make the sanitation staff fully conscious of the impending risks and dangers while handling the waste.

The supervisory staff at the level of sanitation supervisors as well as the ward officers are also required to ensure that these

safety instructions are being fully followed and do's and do not's strictly observed by the staff while handling the garbage. This should be made compulsory and any deviation observed should be strictly dealt with. Even a fine should be imposed upon a staffer violating the safety codes at the work place. For example any staffer while doing broom sweeping or carrying waste from one place to another should not be allowed to start work without uniform, wearing mask and using gloves and if he or she does not use these things should be outrightly marked absent or penalised and informed of this action. He could even lose his salary for the day if he does not follow the code of work strictly. Supervisors should invariably visit the houses of the scavengers to find out if any scrap of waste like non-biodegradable waste like plastic, tin, cardboard, iron, or any other material has been stored at home with the intension of making money as nowadays the activities of rag pickers and scrap vendors have increased provoking the regular staffers of municipal bodies to follow suit. But this is a practice fraught with great risk not only to the staffer himself but to his family members as well. Incidents have been reported in various municipal areas in the country leading to the death of the persons who were fiddling with the waste while looking for the scrap which could have some resale value in the scrap market.

The municipal bodies have an added responsibility of making the dumping sites as prohibited areas for the general public as well as the rag pickers. These sites should be properly fenced



and strict restrictions imposed upon the entry of trespassers as well as the stray cattle to avoid any untoward incident. These dumping sites should be allowed to be used by the municipal bodies only who own and control them and staff like Chowkidars should be posted at the gates/entry points of these dumping sites to permit only the authorised persons to enter the dumping sites and keep a record of the vehicles entering the site with loads of garbage.

There have been covert attempts by non-municipal bodies like Health institutions, etc., to throw their garbage in the dumping sites owned and managed by the municipal bodies in various areas of the state. This besides being done without any permission or a mutual agreement between the two is dangerous in the sense that the type of waste particularly being dumped by the hospitals, etc., is more hazardous as compared to municipal household waste and mixing of the two raises issues of safety even after the landfill. If this practice goes unchecked will have the effect of exposing the sanitation staff to additional risk while engaging in landfill of garbage and secondly quite a different mechanism is to be followed for the hospital waste, which has a huge component of surgical and biological waste, to be disposed of. A mechanism of sorting the hospital waste to separate plastics which are non-biodegradable and constitute a huge component of the total waste, from other kind of hazardous wastes like syringes and blood stained cotton and biodegradable matter which is to be necessarily incinerated, cannot be allowed to be disposed of

by landfill. Otherwise the leachate that may result following waterlogging of the trenches filled with garbage in the rainy season and during the winter will have effect of contaminating the ground water putting both the aquatic and the human life at risk as the ground water has the chances of easily and quickly mixing up with the water bodies which are so widespread in the valley. Since water table in entire Kashmir is generally very high and very close to surface, there is every possibility of leachate resulting from the garbage mixing up with the ground water, thus contaminating the same leading to serious consequences also for those using ground water through tube wells for various purpose which includes drinking as well.

This concern for safe processes of sanitation takes us straightway to the need for designing and construction of trenches at landfill sites in a much safe manner following all the available scientific safeguards and use of engineering techniques. But before dwelling on this issue in detail we may say something more on the need for fencing, walling and guarding of our landfill sites to prevent all sorts of dangers and environmental hazards. We have in J&K dumping sites in various municipal areas close to water bodies, particularly in Kashmir valley which has a huge network of rivers, streams and lakes. This calls for extra caution and vigilance so that no amount of possible surface run-off during rains and dry garbage flying into water bodies during stormy winds may outrightly contaminate the waterways posing threat to both

the humans as well as the aquatic life. Use of river water for bathing and even for drinking particularly in villages in Kashmir as well as Jammu provinces is a known practice hence any amount of carelessness in this regard is fraught with risk. Dumping sites wherever situated close to rivers or streams or any other kind of water bodies need to be properly fenced with concrete brick wall and entry and exit points properly guarded by imposing required restrictions against any possible trespass.

Dumping sites largely contain huge quantity of stored garbage as by practice there is a time lag involved between dumping of garbage and its actual landfill. This situation leads to terrible bad odour/ obnoxious smell, mosquito breeding and dog menace. This deterioration of the local environment at the landfill site dissuades the sanitation staff posted at the dumping site for working even during the normal working hours not to speak of staying there any longer to finish the work. The sanitation staff practically runs away leaving the landfill sites unattended to. This leads to further piling up of the garbage dumped on a daily basis by the transporting agencies who usually do not rest before finishing their daily workload of lifting garbage from the civic areas in order to keep the city clean. But this makes the scene of dumping sites quite horrible thus complicating the matters for the sanitation staff posted at dumping sites. These issues have been projected at various judicial foras as the citizens residing in the vicinity of these dumping sites have failed to get a proper

redressal to their health and hygiene problems at the hands of municipal authorities concerned. The responsibility of proper management of dumping sites therefore assumes great importance and is at the roots of the legitimate survival of the municipal bodies. The sanitation officers of the municipalities therefore should not in any case loose sight of daily monitoring of their dumping sites to ensure that garbage does not accumulate and whatever is dumped daily is got buried in trenches duly landfilled ensuring that earth cover is laid over the trenches so that fiddling with surface of trenches by birds/animals does not expose the garbage to the open sky. Any such situation of garbage resurfacing after rainfall or snow or any wind storm should be immediately cured by applying fresh earth cover so that air remains fresh at the landfill sites facilitating municipal staff to continue staying at work place without least hesitation.

Sizeable investment on dumping sites for improving the landfill practices is rare in the municipal bodies in the state. A substantial amount of the municipal revenues should in fact be diverted to sanitation services and a minimum of 45% of total expenditure should be diverted to sanitation services alone, which besides procurement of disinfectants, tools and PoL include mainly the maintenance of dumping site. Rarely during my inspection of some landfill sites in Kashmir valley have I seen even a shed constructed at the dumping site for the staff, if any posted there, to take refuge during working hours due to heat or rains, let alone a facility created for their night stay.

Except the Achen dumping site of SMC which by now has improved both in investment and facilitation, the low proportion of total funds diverted to sanitation side by a municipal authority is a direct proof of its level of seriousness and concern for creating sound sanitation system within that municipal body.

The following Table -3 shows the percentage of funds that are spared for sanitation services out of the total expenditure that is expended by the municipal bodies during a year

**TABLE - 3\***

Statement showing the percentage of expenditure, out of total expenditure, in a year incurred on sanitation activities by the Municipal bodies in the state

*Amount (Rs.)*

Sl. No.	Name of the Municipal Body	Total expenditure of the Municipal Body (2012-13)	%age of expenditure out of col.3 incurred on sanitation related activities	
1	2	3	4	
		(Rs.)	Amt (Rs.)	%age
1	Srinagar Municipal Corporation	296.00 Cr.	46.00 Cr.	15.50
2	Anantnag Municipal Council	12.70 Cr.	4.97 Cr.	39.13
3	Baramulla Municipal Council	8.23 Cr.	2.11 Cr.	25.63
4	Sopore Municipal Council	7.60 Cr.	1.95 Cr.	25.65
5	Pulwama Municipal Committee	1.96 Cr.	0.77 Cr.	39.28
6	Ganderbal Municipal Committee	3.06 Cr.	1.17 Cr	38.23
7	Pahalgam Municipal Committee	2.77 Cr	0.89 Cr	32.12
8	Pampore Municipal Committee	3.85 Cr.	0.88 Cr	22.85

\* Source : Survey of Municipal Bodies May-June 2013

The table above shows that hardly between 23% and 38% of the total expenditure by each Municipal Body is made on sanitation activities which is far less a desirable figure. In view of the huge plight of the sanitation sector in each Municipal Body the situation demands that between 45% -55% of the funds should be diverted to sanitation work to manage the sanitation of the Municipal areas successfully and ensure a better quality of life of the residents of these municipal areas.

The fact that dumping of garbage for the landfill and maintenance of the site meant for garbage dumping is not done in a scientific manner keeps the quantum of expenditure on sanitation very low. The extent of the failings in this area in various municipal bodies as discussed in the foregoing paras of this chapter calls for renewed attention towards this activity which will proportionately raise the expenditure size in this area. If we subject our municipal bodies to environmental audit by any specialised agency we will come to know of ever new areas in solid waste management towards which attention is immediately required to be given to escape from the charge of being labelled as an environment unfriendly or a polluting institution by itself. Environmental audit would go into the manner and extent to which all the practices relating to collection and disposal of waste are being organized in an environment friendly manner. Environmentally safe practices mean that once an act of managing the waste is performed it

should immediately result in reducing the pollution levels of all sorts and should no longer pose a fresh problem of polluting the environment. One of the important areas in which much success has not so far been achieved in J&K, is the manner in which the landfilling is done. Since no amount of engineering process and design is involved in preparing the landfill trenches the quantity of garbage filled up in the pit keeps on producing leachate as well as the bad odour damaging both the ground water as well as the air quality in the area. Figure 1. is the engineering design of the landfill pit which is to be constructed for safe landfilling of the garbage by a municipal body.

## **FIGURE – I**

Figure -1. showing the engineering design of a landfill trench which is necessary for scientific disposal of the garbage by our municipal bodies.



This engineering design of the landfill which is generally in use in western countries ensures very high standards of safety to the environment both in the surroundings as well as the ground water. It has the provision of extracting the leachate or treating it in the bottom of the container trench as and when the same gets accumulated, through a tube which remains fitted with the bottom of the trench for monitoring of the leachate activity. Another tube is fitted into the trench to extract gas which results over-time due to increase in temperature inside the garbage chamber. This process ensures complete safety in garbage bio-degradation process over the years. However this mechanism involves more expenditure to be incurred on the solid waste management practices to be undertaken on scientific lines. Moreover the SMC and the Local Bodies Directorate need to engage Consultancy for

advance preparation of engineered trenches to remain in place for use so that the landfilling of garbage is carried out soon on delivery of garbage at the landfill site and the system of accumulation of garbage is done away with.

Side by side with the introduction of latest technologies in solid waste management practices in our municipal bodies, it is equally important to introduce and strengthen the existing trainings mechanism for our sanitation staff both at the field level as well as the supervisory level to adapt to these modern techniques and develop a scientific temper which automatically educates them to avoid risks to their own self as also to the citizens. Trainings and education also help the staff to perform its duties in such a manner that consequences of faulty and unscientific practices are fully understood by them and reduction of risks to the society becomes inbuilt in their daily routine. It is quite necessary for the staff to know that what is harmful to them is harmful to the society and therefore recognition of the failures or faults occurring at any stage becomes easy to identify so that notice is strongly and immediately taken of such faults and deviations to ensure strict adherence to the scientific practices of solid waste collection and disposal right from the household level upto final disposal at the landfill.

The society also needs to understand and cooperate with the new initiatives on the part of the municipal staff so that the

same does not receive a set back. A sustained publicity and awareness campaign on the part of the municipal authorities, undertaken side by side to elicit support and cooperation of the resident population in reducing the negative impact that any reckless and uncontrolled littering of waste may create on the genuine efforts of the municipal bodies in ensuring a clean city, is also very necessary. The households need to be educated to retain non-biodegradables for disposal through the scrap dealers whose agents are looking for procuring scrap of plastics, tin, paper and glass for a price as these are recyclables and are fed directly to industry as a raw material. Among the rest of the various constituents of the daily domestic municipal waste the horticulture and agriculture waste can be retained in home made pits for converting the same into a rich manure to provide nutrients to the soil reserved in households for kitchen gardening. This practice will drastically reduce the municipal waste due for lifting each day by at least  $\frac{1}{3}^{\text{rd}}$  and make both collection and disposal of the same easy and manageable. In western societies the practice of not throwing any kind of waste outside on the streets but depositing the same in distinguishable bins helps municipalities to directly lift the waste from the households every  $2^{\text{nd}}$  or  $3^{\text{rd}}$  day by exchanging empty bins with filled up bins and thus ensure waste disposal in a hassle free and disciplined manner in which both the households and the service providers have a role to play.

An appropriate funding of trainings, publicity and awareness campaigns is therefore a pre-requisite for building up a culture by which solid waste management by municipal bodies becomes a fully recognised social activity. The ruthless manner in which all kinds of waste whether by households or by commercial organizations of various sorts is thrown in one direction, which is municipal waste collection points, is a stigma which both the sides in the present dispensation detest resulting in a huge sanitation and environmental negligence which stares us all in the face to emerge any time as a huge epidemic in our habitations. This takes us to examining the issue of mixing up of hospital and industrial waste with the municipal solid waste and the consequences thereof.

## **CHAPTER – 3**

### Additional risks due to mixing-up of Bio-medical and hazardous waste with the municipal solid waste

There is a huge amount of hospital solid waste of a hazardous nature coming out of our health institutions in the shape of surgical and biological waste which needs to be separately taken care of. Given the nature and the waste mix like syringes, needles, blood stained cotton and linen which contains huge amount of infectious material cannot be allowed to be mixed up with the municipal solid waste generated in civic areas let alone touching or handling the same with naked hands as it is the practice now in the municipal bodies where use of hand gloves is not very common. Bio-medical Waste (Management and Handling) Rules, 1998, come handy to guide both the hospital and civil nursing homes/diagnostic centres to dispose of this waste in a safe manner preferably through the process of incinerations.

Although this kind of waste generated by major health institutions is on an increase but managing its disposal on the scientific lines remains a problem. Whereas the health institutions in rural areas visited particularly in South Kashmir Districts of Anantnag and Pulwama have entrusted this job to M/s Health Care Systems, a private sector SSI Unit at Lassipora Industrial Estate Pulwama, but the objective stands far from

achieved as the unit holder is not promptly lifting this waste regularly from the premises of the concerned hospitals thus allowing the waste to remain dumped in hospital premises for days together in an unsafe manner with fear of the spread of infection or the visiting public coming into contact with this infectious material directly or indirectly. Besides whatever small portion of this hazardous waste is lifted by the contractor M/s HCS, does not straightway go for incineration which facility is installed at the SSI unit at Lassipora. We have found during our recent inspection of the unit in May 2013 alongwith the Executive Officer, Pulwama Municipal Committee that the staff of this unit indulges in sorting of this hospital waste to separate plastics, etc. and after manually cutting the plastics into smaller pieces, resorting to manual process of pulverisation and supply it in a packed form as a recyclable material to the industry outside the state and disposes of the remaining part only of the hospital waste like biological waste and blood stained cotton, etc., through the incineration, thus violating the relevant rules about handling of the hazardous waste coming out of hospitals. These contracts with the private sector need to be regularly monitored by the hospital authorities for regular lifting and safe incineration ensured to prevent spread of any kind of disease. The municipal officials do not seem to be taking up this job as under the provisions of the existing law the State Drugs and Food Organization besides the Health Deptt. are duty bound to ensure the proper and safe disposal of the hospital waste throughout J&K.

The disposal of waste by the individual diagnostic centres usually run in hired buildings and other limited spaces in the market places in major urban centres of J&K is not documented or monitored at all. These centres produce hazardous surgical waste in small quantities which dissuades them in arranging incineration by hiring such services. The outlet for this waste is therefore the municipal domestic waste collection dumps which are open and unguarded on the main roads. This practice of throwing hazardous waste openly has serious implications for the municipal sanitation staff handling this waste for carriage to landfill sites. The risks to their life can be immeasurable as they do not normally perform duties by using safety dress like gloves, masks, shoes and aprons. The failure on the part of the municipal authorities/Health authorities on both the fronts of not monitoring proper disposal of Bio-medical waste and secondly not imposing the proper dress code upon their own sanitation staff is resulting in a double jeopardy for the hapless sanitation workers making their escape from the ill effects of the occupational hazardous rather impossible. This is a serious breach of the national and international conventions on the safety and welfare of safai karamcharies working in our municipal bodies/Health institutions.

The effects of the breach of protocol on the handling of hazardous waste by the industrial units operating both in the industrial estates as well as in residential and other commercial areas are gigantic for the land and the water bodies. These wastes whether in the form of scrap or in the ash form remain

openly dumped in the premises of these industrial units. And where industries also release effluents in the form of waste water like dyes or the product wash the same goes into the municipal drains or in the nearest water bodies thus contaminating the water and threatening the aquatic life. In the absence of a huge network of sewerage treatment plants catering to entire drainage system, most of the sewage goes straight into the water bodies like lakes, rivers and streams flowing in the vicinity adding huge poisonous substances to these water bodies threatening their survival as well as worsening the water quality all around. We have seen such places where only at a short distance from a municipal waste collection point or a regular dumping site water is being permanently lifted from rivers for supply of the same for drinking purposes and the authorities are not bothered to keep an eye upon the surroundings lest any industrial pollutants straightaway flow into these waters. The Jammu & Kashmir particularly has a huge network of streams, canals, rivers and lakes and wherever any industrial area or estate or a park has been set up and industrial activity is being promoted the concern for the water quality of the nearest open water source should be taken care of as part of the environment protection responsibility of the promoters of these industrial hubs. The role of pollution control authorities should be equally substantial, strict and highly punitive so as not to allow any surface or ground water contamination by these industrial units.



The local municipal bodies in both the urban as well as the rural areas do not seem to be playing any role in detecting or preventing this kind of pollution spread by local industrial units. The sanitation inspectors of these municipalities do not recognize their duty in checking this kind of pollution and have thus far kept their role limited to the local limits of their respective municipal bodies and that too to the collection and disposal of municipal solid waste only. This became known during the inspection in the Lassipora Industrial Estate in connection with the functioning of M/s Health Care System where it was noticed that the officials of Municipal Committee Pulwama were inspecting this place for the first time as the said location is quite outside the limits of municipal limits of Pulwama Municipal Committee. Similarly the municipal sanitation staff is not monitoring the arrangements that have been put in place by the industrial unit holders for the disposal of their industrial waste, therefore the possibility of clandestinely using municipal garbage dumps or landfill sites for depositing this refuse by the unit holders cannot be ruled out. It could therefore be only suggested, while discussing this issue with the Executive Officers of these municipal bodies, during my survey in May-June 2013 and with the Director, Urban Local Bodies, during one of my visits to his office, that a format should be prescribed for the municipal bodies to collect information from all the hospitals as well as industrial units on a periodical basis, like fortnightly or monthly, to monitor the type of waste produced, its quantity and arrangements in place to dispose it of lawfully so that this information is scrutinized for a

practical follow up action. This procedure would help ensure that the arrangements made are in accordance with the law and are sufficient to meet the environmental requirements otherwise penal action against the violators through the concerned agencies could be recommended. This will give a measure of relief to the state and its agencies including municipal bodies to see that the health of our people and the mediums like land or water bodies are also safe. This will also help prevent future damages to the environment only when proper policy initiatives are put in place right at this stage when the magnitude of problem may be within the controllable limits. This will certainly act as a trend setter for any expansion of the industrial activity and provision of health services particularly in the private sector, for which the concerned deptts. have formulated policies aiming at promotion to the Health and industrial infrastructure in the private sector in J&K.

The departments of health as well as the Industries too have a role to mitigate this crisis right at the licensing stage when cases for setting up of hospitals, diagnostic centres and industrial units are processed. At the first stage when the licences are cleared it should be ensured that these houses have got systems installed for disposal of their hazardous waste. The pollution control bodies should have a role in clearing the licences of these centres/units as this body has the technical know how of what arrangements can be acceptable and deemed as sufficient and can also provide the technical advice

to these prospective units to sufficiently provide for a proper disposal of the hazardous waste.

The water bodies and the municipal landfill sites become an easy prey of the machinations of the institutions where the pollution control or waste disposal equipments are not in place. The hotel industry in the state has come under scrutiny for not putting in place sewerage treatment plants by the Hon'ble High Court in a PIL, directing such hotels to close down pending creation of such a facility with the aim of protecting the water bodies. It has been repeatedly enjoined upon the municipal bodies during my interaction with them that the landfill sites should be made protected areas with complete watch and ward, protection walling and check at the entry point. The sites should remain closed for entry when not in use during holidays and late hours, for example. This will strengthen the monitoring mechanism and put curbs on the illegal use of these sites for dumping of hazardous waste as well as unplanned use of these sites affecting its landfill capability. These sites should not admit of any trespass and proper surveillance should be ensured by posting of permanent staff at these places and by constructing huts for the staff as shelters for use with all the facilities of sanitation, water and power so that the staff posted at landfill sites can afford to stay back 24 hours to achieve the desired objectives.

We also have a Lakes and Waterways Development Authority in place in our state the objective of which is to preserve and protect the water bodies from any encroachment, etc., and also to improve the health of the water quality of these water bodies. For this constant surveillance of these water bodies is carried out as well as a record of the water quality data by the samples taken on a regular basis, is maintained for detection of any possible disease, etc., in the water to attempt a timely cure of the same. This has since long necessitated a fair amount of vigilance on the part of LAWDA J&K to detect any worsening in the water quality and find out its true cause as well. However a well designed surveillance calls for a Management Information System to be developed collecting data about the disposal of waste water, dyes and chemicals used in various kinds of industrial units small scale and cottage industries functioning next to water bodies throughout the state of J&K on a regular basis.

Hotel industry and the functioning of houseboats in lakes as guest houses for tourists providing catering services as well have also a great impact upon the health of water bodies in the state. The movement and stay of tourists in the state demands huge preparedness on the part of their hosts to carryout disposal of solid waste in such a manner that no damage is inflicted on the environment particularly the water bodies as most of the tourist places as well as guest houses are located close to these water bodies. The LAWDA's role is also to see that all anti pollution arrangements are in place before tourist

stay is allowed in these hotels and houseboats. The number of houseboats is huge as compared to the size of the world famous Dal Lake and this dis-proportional load of generation of sewage and other wastes poses a specific threat to the survival and water quality of the lake. If proper outlet for the refuse like grey water and human excreta is not ensured to go out of the Dal precincts on a round the clock basis, the lake will have a sure death owing to concentration of huge nitrogen and acidic substances into the lake water threatening its water quality as well as the aquatic life. The weed generation at present rate has already taken a toll of the fresh water visibility as surface coverage of weed in Dal is overtaking even the speed at which weed harvesting is going on. The net effect on the Dal waters is one of suffocating under the weed and algae which is the result of huge concentration of nitrogen substances in the otherwise pure waters of Dal.

A policy aiming at relocating the houseboats out of the Dal lake shall have to be vigorously pursued on the pattern of relocating the residential population of MirBehri hamlets who besides living within the lake body are also indulging in activities like vegetable cultivation and growing of grass for weaving of mats, an old and traditional craft of the people living in these hamlets. The amount of waste and faecal matter thrown into Dal lake waters by this resident population is a continuous threat to the survival of the lake and needs to be tackled on a war footing to prevent further deterioration in the water quality and growth of weeds. The water contamination resulting out of use of various

kinds of fertilizers and chemicals in the vegetable farms cultivated by the Dal inhabitants has been threatening the aquatic life besides the water quality.

We should have a given time frame within which to remove all the residential places like houses, hotels, houseboats etc., out of the Dal lake waters to give a clean shot to the survival of the lake by freeing it from constant inflow of sewage coming out of these places.

A huge amount of hazardous waste is at present being rechanneled into water bodies in the shape of manure that is being used as a fertilizer for growing of crops within these water bodies. Even the animal population is also being made to graze on the reclaimed bodies of lakes, etc. thus making the job of rejuvenation of the health of the lakes very difficult. The magnitude of the problem is huge and as per the details provided by LAWDA in one of the recent high level reviews, held about the progress of relocation of Dal lake residents, there are about 1764 houses situated within the lake body at present (July 2013) which need to be relocated and another 631 houses on the periphery of the lake along the road on South-West side of the Dal Lake and these 2395 structures and the residents living in them are occupying a land mass of 4453 kanals of land under and appurtenant to these structures. Besides another 6255 kanals of water body within the Dal lake is claimed in ownership, being used for purposes of grass cultivation and

growing of vegetable under water, which also needs to be acquired to free the water body of any kind of human intervention.

Dal lake is right now the abode of a huge business activity owing to residence of tourists in the houseboats located within the lake and movement of thousands of other tourists who enjoy Shikara (Boat) ride while moving from one end to another end of the Dal lake. And all sorts of goods ranging from Kashmir art products to fruits, vegetables and packaged food items and flowers are being sold adding to the generation of waste and packaging material as well as food waste which remains littered everywhere on the surface of the water body giving a shabby look. In addition to this various institutions like schools, dispensaries and social welfare centres are also operating for a long time from within the lake body catering to the needs of the resident population thus adding to the overall pollution load of the lake.

These residents have been clandestinely attempting repair and renovation of their structures which although strictly prohibited under law is still carried on. Besides material and other sanitary ware, tiles, etc., are being discreetly taken into the hamlets within the Dal lake for use to facilitate living there. These activities have had an adverse impact on the measures to protect the health of this water body and are equally retarding

its smooth revival for which crores of rupees are being annually spent.

There has been immense improvement no doubt after the setting up of sewerage treatment plants on the circular drain around the lake at several places to arrest the inflow of untreated sewage coming from the residential colonies surrounding the Dal Lake. But certain breaches are still there particularly in Nishat and Brari Nambal area which are constantly adding silt and sewage to the water body endangering its purity and survival. Though the major challenge continues to be that from the inner habitations of MirBehri areas. The decisions taken in the recent high level review therefore rightly calls for the relocation of all residents out of the Dal within a maximum of three years ending 2015-16 in any case, so that the threat of fast deterioration to its water quality and environmental condition is contained and brought under control in a time bound manner.

The observance of no residence zone within 200 metres of the lake shores is to be very strictly adhered to and implemented. This is becoming a very serious responsibility for the concerned agencies as pressure on land within Srinagar city is not only growing owing to population explosion but also as the land in the valley is becoming costlier owing to huge amount of land acquisition that has been carried out in the recent past by Railways, Defence, Education, Roads & Buildings Deptt. and



Tourism. This has made the land costly and has also enabled the people to migrate to cities in huge numbers thus putting immense pressure on the city lands. No residence zones like the ones prescribed under the Master Plan for Dal lake need to be strongly defended at all costs. Even a small amount of leniency or lack of surveillance will prove very costly for the state to succeed in protecting the lake body from being encroached upon from outside, as well as prevent the ground water from indirectly polluting the lake waters which is already highly polluted due to installation of centrally fitted sanitation facilities in Hotels and residential houses constructed on the periphery of the Dal lake.

Violation of land use norms in the surroundings of Dal lake and surveillance of water quality at various points along the shores of the Dal lake are therefore two great and serious challenges for the agencies responsible for the conservation of Dal lake and for the control of pollution levels in all the three mediums of air, water and land.

Of late another great challenge to the water quality and fertility of land has been the rampant use of polythene mostly as a packaging material in the entire state. Some Tourism Development Authorities including the Srinagar Municipal Corporation have banned its use within the local limits of these bodies. But despite of sustained efforts to put an end to its use the local retailers as well as the way side vendors have been

making a generous use of polythene to promote their sales. This violation is taking place because there are no concerted efforts on the part of all the pollution control bodies including the municipal local authorities to prevent these retailers from use of polythene bags for supply of goods they offer for sale. The use of polythene has been proving very dangerous in preventing cleanliness of water bodies, free flow of water in the drain as well as protecting the land fertility from getting impaired due to depositing of polythene into the earth during rains, floods and windstorms. There are simultaneously no laws to deter the public from the use of polythene or its acceptance from the vendors of vegetables and fruits at the time of sale.

The citizenry has a great role in preventing the use of polythene, which has now assumed alarming proportions, by rising to the occasion and refusing any packaging which uses polythene. A well organised campaign involving all the NGOs and Govt and Semi Govt Organisations need to be launched educating the people through the print and spoken media like radio, TV and internet to completely boycott the acceptance of polythene and instead use cloth or jute bags while making purchases in the market. Side by side the authorities that be should make use of the penal provisions whenever any violation comes to their notice. The armoury provided by the Hon'ble High Court J&K in its latest interim judgement should be generously made use of by these agencies particularly the Police Department authorising them to bring the violators to justice. Manufacturers and wholesale dealers of polythene

should be prevented from supplying stocks of this commodity to the state/valley. Stocks of polythene being smuggled into the state/valley despite of the ban imposed on its use by the local authorities, should be seized at Lakhanpur/Lower Munda Check posts in the right earnest. In this mission of preventing the use of polythene, citizens have a big role and whose genuine resolve alone can bring this menace to its very end.

This brings us to the more vital role of the citizens in general to attempt a genuine reduction of waste in their daily activities so that less load is left for the municipal bodies to handle as the job is otherwise becoming diverse and colossal calling for support of the civil society in ensuring the reduction of total waste.

## **CHAPTER- 4**

### **Measures to cut generation of waste by sorting, recycling and re-use**

Citizens in a civilized society have a very important role in protecting the environment. The objective behind achieving a better degree of environmental protection is to ensure a better quality of life of the citizens. Therefore any contribution by the citizens in this regard would amount to a self help and serving our own interests as citizens. The citizens therefore need to be sufficiently educated about the ways by which we can reduce the waste, we are generating on a daily basis for lifting by the local bodies, as a first step towards creating better conditions for cleanliness and hygiene.

One of the main reasons why we are not successful in waste reduction on a daily basis or do not avoid littering of waste on our streets, lanes and by-lanes irrespective of time is that we don't have a policy at the municipal level by which we could regulate throwing of waste outside our premises. It would be rather just to throw the waste during the early hours of the day when the waste collection is in progress by the municipal staff. By announcing a policy in the shape of an appeal for not bringing waste out of houses after a certain appointed hour, say 9.00 AM in the day, would ensure direct participation of the public in general in ensuring a clean city during at least a

major portion of the day. This policy will have a great value in a tourist city of which we are the residents in terms of tourist response. We are also told of a similar practice having been adopted in the town of Kishtwar where municipal staff while reporting on duty in the morning each day would blow a whistle outside each lane and street and the residents would respond by bringing out the waste to be directly collected by the said staffer in his handcart, etc.

Our commercial and business establishments too have an important role in observing this discipline as they keep on throwing packing material on the road throughout the day as their sales progress with the result our footpaths are seen with a huge packaging material littered around all the day. For these market places we could introduce a mobile waste collection service in the evening daily so that these shops, business houses and market vendors would deliver their waste material altogether after retaining it during the day when it is actually produced. This practice needs to be introduced by issuance of an appeal by the municipal authorities whereby they empower their staff to strictly deal with those not cooperating with this endeavour of the authorities to keep the city clean.

In fact the pollution control laws in other countries have an inbuilt provision to combat this situation and prevent a large scale littering of waste particularly by the retail vendors. This is

known as “ Producers Responsibility Clause” under which all the manufacturers or the producers of a consumer item like ice cream or fruit juice or potato chips, etc., have necessarily to arrange for collection of the packing of these items once these are consumed and the packing thrown out. This has to be managed by these suppliers of goods at their own level but generally to remain on the safer side and to avoid being fined by the authorities for non-compliance, they enter into an agreement with the municipal body itself by paying the requisite fee as may be agreed upon to ensure that lifting service is made available and the compliance with the law is ensured.

Since a huge amount of packed consumables are consumed in the market nowadays the municipal authorities would do well to incorporate this provision in their sanitation rules so that not only the littering of this type of waste is controlled, which otherwise also forms a huge proportion of the total waste that remains littered on the roads, but a handsome revenue to the coffers of the municipal body concerned is added which is necessary to tackle the sanitation loads very efficiently for which both manpower and equipment are to be deployed.

Sorting of waste both inside the households as well as at the collection centres by the municipal bodies is a standard practice worldwide this time. This practice not only reduces the waste directly due for landfill for its final disposal, but

fetches some revenue to the sorting agencies by segregating non-biodegradables like tin and plastic which are materials presently used for recycling at a very large scale. Nowadays rag pickers country wide have added another dimension to it of segregating paper and cardboard and similar other packing material besides tin and plastic for supply as raw material to re-processing industry. At the domestic level even vegetable and horticulture waste could be retained within the courtyards to be converted into a very useful manure for our kitchen gardens. These and similar practices proportionately tend to reduce the disposable waste for the municipal bodies to take care of.

In order to ensure full compliance with these healthy practices of not throwing the usable waste out on the streets or in municipal body supplied waste bins, we need to popularise these practices and at the local collection points install separate bins for depositing of biodegradable and non-biodegradable waste so that the sorting process becomes easy. Even the municipal bodies can at an advanced stage of their publicity campaign encourage the practice of altogether retaining of usable wastes instead of throwing it on the streets, which could be conveniently retained in home made pits and subsequently used as a rich manure for the kitchen gardens/flower bed nurseries. In order to increase the productivity in our kitchen gardens we generally make use of different kinds of conventional fertilizers like urea and phosphate, etc., which has a poisonous effect on the soil

impairing its fertility, besides causing contamination of the ground water as well. We would therefore do well by popularising the method of conversion of horticulture and vegetable waste into a manure which is rich in nitrogen and phosphorous, etc. This practice would prove more of a money saving experience for both the municipalities as well as the households.

Reduction of solid waste nowadays has great relevance and importance for the successful and sound functioning of municipal bodies throughout the state mainly for want of space for disposal of garbage by landfill, etc. Not only are these existing landfill sites overburdened raising management issues, but it is increasingly becoming difficult for the newly created municipal bodies to find landfill sites for the disposal of its garbage. The situation has become so precarious that attempts at identifying landfill sites has not yielded any fruits as neither the municipal body nor the local civilian administration has been garnering support in its favour to make use of the available land as a landfill site due to resistance from the civil society on environmental grounds. They complain that these sites turn out to be a nuisance and a health hazard for the surrounding population. The following Table-4 shows the status of the availability of and the use of land as landfill site by the municipal bodies in Kashmir Surveyed in June, 2013.



**TABLE-4 \***

**Status of availability and use of landfill sites by Municipal  
Bodies in Kashmir**

<b>Sl. No.</b>	<b>Name of Municipal body</b>	<b>Whether landfill site identified</b>	<b>Whether landfill site in use</b>	<b>Remarks</b>
1	2	3	4	5
1	S.M.C Srinagar	Yes (540 kanals at Syedpora Achen)	Yes	Low lying elevation leading to limited trench capacity and bad odour.
2	Anantnag Municipal Council	Yes	Yes	Only dumping being done, no landfill in progress. Landfill site not fenced.
3	Baramulla Municipal Council	Yes	Yes	Only dumping of garbage being done. Landfill site not fenced.
4	Sopore Municipal Council	Yes	No	Garbage temporarily being dumped at various unknown locations. Use of identified landfill site subject to huge public resistance.
5	Pulwana Municipal Committee	No	No	Garbage temporarily being dumped at a public place next to municipal office
6	Ganderbal Municipal Committee	Yes	No	Garbage being temporarily dumped close to a public place resulting in huge bad odour. Identified site not yet fully fenced.
7	Pahalgam Municipal Committee	No	No	Garbage being temporarily dumped at various locations.
8	Pampore Municipal Committee	Yes	Yes	Only dumping of garbage being done without any landfill.

\* Results of field survey done in May-June, 2013.

The results of the field survey done in respect of 8 prominent municipal bodies in Kashmir valley have suggested that 50% of the municipal bodies are not in a position to access their identified landfill sites due to administrative reasons and wherever the sites are in use only the dumping of solid waste is resorted to leaving scientific landfill a far cry and unachieved objective so far. This has resulted in huge inconvenience to the surrounding population and in case of Srinagar Municipal Corporation alone the matter regarding use of its dumping site at Achen Saidpora in Srinagar is pending disposal before the Hon'ble High Court, with huge amount of public pressure being brought upon the authorities to consider its immediate abandonment/shifting on grounds of health and hygiene. Although of late the SMC has been making huge investment in improving the environmental status of this site to leave minimum possible impact upon the surrounding environment.

One of the reasons for lack of public support and cooperation in waste disposal activities of the municipal bodies has been the non-involvement of the people in general in sharing the financial burden of the municipal bodies by not paying regular sanitation fees on a monthly basis. Wherever such a fee has been proposed serious efforts are not being made to regularly recover the same, so that people would feel that the more waste they produce the more is going to be spent by the municipal bodies on the management of solid waste which is

likely to force the municipal authorities to enhance the rate of this fee to ensure effective handling of the solid waste in their respective local bodies.

A free service on account of lifting and disposal of the solid waste has made the residents insensitive to their role and responsibilities in ensuring that the municipal bodies are capable of carrying out this job for which the availability of funds required therefor is a pre-requisite. Municipal bodies should have a tariff schedule for various income groups on account of sanitation fee and this should be collected promptly otherwise the services are not likely to continue owing to shortage of funds. In this way the residents will get a message that failure to pay this fee will deprive them of availing the sanitation services which are absolutely required for maintaining a fair amount of decency in their living standards. However any amount of increase in the generation of waste due to an increase in the consumption levels of the population may warrant a proportionate increase in the sanitation fees. This will automatically sensitize the people about the consequences of increase in waste generation and they may apply their own checks on it which is likely to result in waste reduction in order to prevent a possible fee increase by the municipal bodies. Therefore a combination of policies for fees and fines for the quantum of waste generated and for haphazard and relentless throwing of waste outside on the roads may lead to a culture of waste reduction and bring

discipline in the littering of waste as well as protecting the sanitation status of our cities.

In the western societies the anti pollution laws are so strict and level of cooperation from the people so strong that it is easy for the municipal authorities to impose various kinds of penalties on the individuals who out of carelessness and scant regard for law violate the environmental rules and damage the environmental status of a place. But rules being strict such persons are promptly fined and that too heavily under the Principle of "Polluter to Pay".

Municipal laws dealing with environment, health and hygiene therefore should have a strong provision whereby an individual or an agency whether domestic or commercial is adequately fined to pay for the damage to environment that has been caused by their wrong doing like littering of waste in the public places making things very unpleasant for the public. We have the situation where marriages are held and stalls are installed in public places or during market exhibition of products for sale which attract huge crowds and at the end a large quantity of waste is left littered for the municipalities to do the job. During festivals shopkeepers and hoteliers do brisk business without any arrangements for the waste to be lifted before the sites are vacated at the end of the festival. This calls for the municipal bodies to enforce their rules against the littering of waste thereby making the polluter to pay. This will

force the concerned to make advance arrangements with the municipal bodies for timely lifting of waste and help it with both the revenue as well as the desired level of cleanliness of the sites for the public good. Huge fines can then be imposed upon those who do not cooperate and produce this waste in alarming proportions. A fair amount of discipline will thus be brought to bear upon the players to attend to such problems of their own and to make elaborate arrangements so that no defacing of streets and playgrounds is allowed to take place.

The municipal bodies as such should have an effective monitoring mechanism in place so that the environmental status of our cities is well protected and properly taken care of under the umbrella of a well laid down policy governing environment, health and hygiene, whereunder the violators are made to face the consequences in the form of penal action for the recovery of costs to make good the damage to the environment. We shall have to put in place commissions and courts to try environmental offences on a fast track basis so that quick action is taken not only to punish the guilty but damage done to the environment is remedied and its status restored on a war footing.

I remember being witness to a case in Bradford, U.K. in 1998, February, when a polluter was apprehended by the British Police, the Scotland Yard, who had been discreetly during night hours dumping dismantled material on the road side. The

environmental agency of UK registered a complaint against him and he was caught red handed while dumping a load of dismantled building material on the road side and arrested. He was produced before the local magistrate where he admitted his guilt and was both fined as well as sentenced one year jail term. This case was given wide publicity by the Govt throughout UK to act as a deterrent for all the people who may intend to violate the laws governing the environment.

In our case too the State High Court has been taking suo moto cognizance of the citizens' concerns regarding maintaining a certain degree of sanitation and cleanliness in the municipal areas and has in a recent case also given directions to the SMC Srinagar for total lifting and sanitary landfill of the entire garbage generated in various municipal areas of SMC besides keeping condition of Achen garbage dumping site under constant surveillance so that no health hazard is caused due to any bad odour, etc. But the fact remains that the issue of garbage disposal in an environmental friendly manner shall always be in need of a huge public cooperation. Citizens shall have to be educated to rise to the occasion in their own interest and adopt the policy of sorting the garbage for recycle and reuse so that only a limited portion of the biodegradable element of garbage is left for the municipal bodies to lift for sanitary landfill. This policy of garbage reduction at the household level holds a key to the long term survival and scientific management of our garbage dumping sites which are quite precious and scarce under the circumstances.

Otherwise municipal bodies do not have any magical solution to offer to this serious issue of ever increasing quantum of garbage generation in the cities to achieve an effective and environment friendly disposal. Municipalities may also themselves have to engage in sorting of the garbage at various levels on a day to day basis so that some value is derived out of it by separating the recyclables from the waste and send remaining part of the waste to the compost/fertilizer plants as and when the same are set up. These plants use only a certain quantity of waste which has a huge content of vegetables, horticulture, wood and paper for easy conversion by mixing certain other chemical agents for production of manure/compost which could be used in agriculture as a rich fertilizer, leaving most of the garbage for the Municipalities to handle for final disposal.

Such mini conversion plants need to be set up in good numbers at different locations as a long term policy to reduce the net disposable waste by landfill or incineration. Better use of the available technology in this regard can also solve the problem of growth in the quantum of waste required to be landfilled which has reached the unmanageable levels as at present. This takes us to the more important issue of cost sharing between the local authorities and the citizens in order to sustain the viability of handling solid waste management progressively in a scientific manner to reach a bit nearer to the international standards.

## **CHAPTER-5**

### Best Value Approach -- Paying municipal fees to avail improved sanitation services by the citizens.

The quality and standard of the services in the area of sanitation provided by the municipal bodies to its people depend basically on two things. One is the peoples standard of maintaining or helping to maintain the cleanliness of their own areas. Which means the extent to which such people care for and cooperate in keeping their surroundings neat and clean. The extent of concern is demonstrated by the fact that no sooner any delay is made in carrying out routine cleanliness by the municipality, the locals have an organised set up which swings into action and alerts the municipality of the delay or any departure from providing the routine service, which is then instantly restored. In short under this approach people of the area are keen and sensitive about the standard of cleanliness which ought to be maintained by the local municipality in the services provided by them in a routine manner. That is why in the same city which is almost uniformly



being looked after by the municipality in the matter of sanitation some areas look very clean throughout the day and some areas have waste scattered all the day despite of routine cleanliness being carried out by the municipality regularly and without any let up. Thus the local population, their habits and the sensitivities towards cleanliness of their area has a great role to play in maintaining a fair standard and quality of the municipal services otherwise provided in a routine manner uniformly in all the civic areas.

The second thing is the price that the locals are ready to pay in the shape of sanitation fee to the local municipality in lieu of such services. The more regularly such fees are paid by the residents and the care with which these are collected by the municipal staff on a monthly basis has a strong bearing upon the regularity and seriousness with which these services are provided by the municipality. For example an area which is very prompt in paying sanitation fee to the municipality and has a professional approach to see that municipality does not have any problem in collecting such fees every month, the sanitation wing of the municipality will never allow any absenteeism or casual approach on the part of its staff to perform its duties in these areas. The municipal sanitation wing feels duty bound to ensure presence of sanitation staff in such areas without any fail come what may. Because it is only these areas in which a municipality tastes the success of its programmes and considers the appreciation as well as the demanding nature of residents of these areas as a justification

of its existence as well as success of its performance. As against this the areas where the collection of fees is poor especially in the area of sanitation the people themselves tend to be soft and unmindful of the punctuality as well as quality of the municipal services. The municipal staff in turn tends to be lax towards the performance of their duties in such areas deeming it as none of their moral obligations to be accountable and answerable to the residents in such areas. Usually it is the staff meant for such areas which is sometimes redeployed to other areas where the peoples' response to the acceptance of various policies of the municipality is very good. People in low fee collection areas have a natural guilty conscience of not paying for the municipal services and hence are less motivated to demand better services or make the municipal staff accountable. Municipal staff never finds solace in serving the residents in such areas and their presence or absence in such areas does not warrant any serious public response. The work load also in these areas is much higher as the level of cooperation from the residents being poor dirt remains scattered throughout the day in these areas and therefore public sensitivities about the standard of municipal services are also marginal.

It is therefore peoples own taste for cleanliness and desire to pay promptly for the municipal services which determines the sanitation standard of the municipal services in these areas. In other words peoples own standard and the capacity and willingness to bear the cost of municipal services dictates the

quality of such services being provided by the municipalities. Thus these two things have a positive and direct relationship with the capacity and ability of municipal bodies to provide a certain quantum of services which therefore also means that a municipal body can increase the quality of its services as well as its volume if the residents of an area are equally prepared to pay a higher price in terms of service charges. This phenomenon is described as the Best Value Approach of the citizens towards availing of improved services by the municipality and being prepared to pay a higher rate of service charges as and when the demand for providing such enhanced services is raised.

This kind of an approach which is fairly in vogue in the municipal areas in Europe and U.K. makes room for and promotes innovation in the area of providing municipal services where the cost sharing is not a problem at all. In Europe in the recent past providing of multiple waste bins for each house to facilitate sorting of bio-degradable and non-biodegradables and storing recyclables separately to conduct separation exercise at the household level and cleaning of these bins on a daily or alternate day basis instead of twice a week besides providing mechanical road sweeping in place of broom sweeping and litter collection are some of the improvements that are now being constantly attempted towards the satisfaction of the best value approach in sanitation practices in which huge interest has been shown by the citizens during periodical interaction with the local

authority representatives while noting down the views to evaluate the citizens level of satisfaction about the municipal services.

Best value approach has got to be a part of a municipal body's policy to achieve a higher level of public satisfaction resulting out of its services as well as the residents aim of enabling a municipal body to come up to its expectations in an atmosphere where nowadays the peoples' level of literacy and overall standard of living is growing as a result of economic development. No wonder therefore that the level of cooperation of the people should also grow to such a level that the people become a driving force for the municipality to offer valuable high quality services with least resistance or problem in readjusting the level of service charges proportionate to the quantum and the quality of service provided. This situation can sound optimistic for our public institutions to thrive and grow stronger and bring into its ambit more services of the nature of portable water, primary health, nutrition and child care and elementary education besides communication and road infrastructure.

What is therefore fundamental to the recognition and acceptance of the existence and role of the municipal body is the prevalence of a widely acceptable and well subscribed regime of service charges among the citizens. These service charges are levied after proper assessment of the quality and

the magnitude of sanitation services being provided by the municipal bodies. The service charges are also being re-fixed and readjusted with the need for up scaling the sanitation services or on grounds of increase in the cost of these basic services owing to inflation. Since changes in the technology calling for use of mechanised tools and other disinfectants are an important corollary to the development of a sound regime of services from time to time it remains for the residents to choose between the traditional method of providing such services or to opt for the use of latest technology in rendering such services in an effective manner. Citizens in short, in an upcoming developmental scenario, are the best judges in deciding the pattern and technique of services to be brought in use in the scheme of sanitation services and have therefore to pay more to qualify for availing of such services.

Availability of sufficient resources alone enables the municipal bodies to introduce state of the art techniques in lifting and disposal of garbage in a scientific manner. This also ensures that not only are the day to day problems in sanitation tackled properly but there is a sense of care inbuilt in providing such services for the staff engaged for the purpose. The reasons for delay in installing a conversion plant in the municipal corporation areas of Srinagar and Jammu has made the problem of managing the Achen-Saidpora landfill site an eye sour for the municipal body as well as the surrounding population. Setting apart funds for the purpose and having to install a conversion plant of a required capacity to take a load

of about 150-200 MT capacity garbage after sorting on a daily basis may be an immediate solution to the problem. Besides adopting sanitary landfill practices and training the staff permanently posted at the Achen landfill site, we need to develop and manage garbage disposal as per engineering design of a landfill chamber which takes care of both the gas and leachate resulting out of the traditional system of landfill presently in vogue. This system has to survive simultaneously as the conversion plant may use only upto 60% of the total garbage after sorting leaving the remaining upto 40% of garbage to be disposed by landfill.

A well organised system of garbage disposal has to be evolved with full financial backing to be based on a strong and fully subscribed service charges regime which is elastic to the cost as well as to the future needs of the community. Citizens have to recognise the need for accepting sanitation service charges as an essential part of their budget as important as expenditure on health and education. Only this change in the approach and attitudes can bring about a response change in the attitudes and approach of the municipal functionaries.

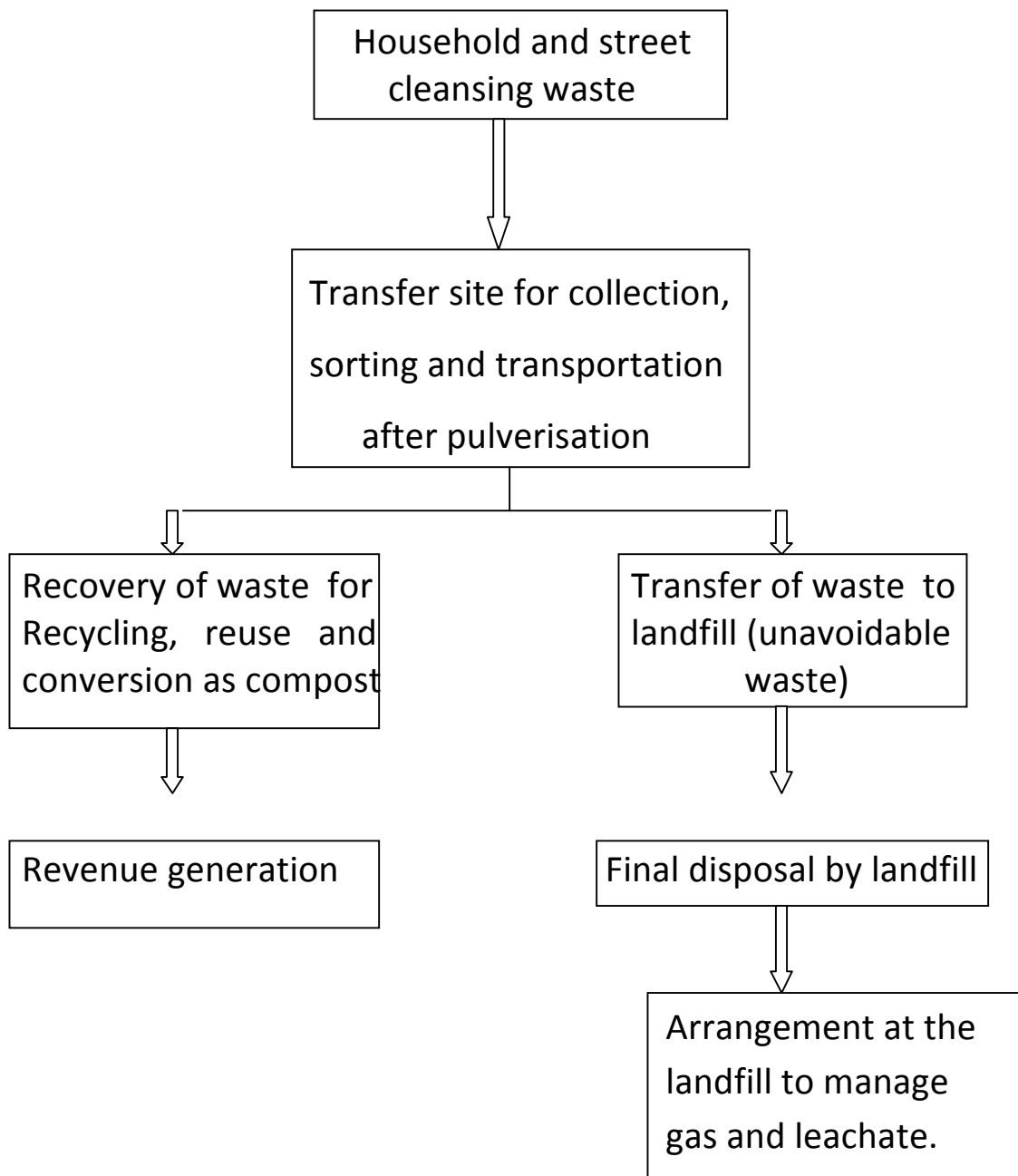
This strategy will also involve engagement of consultancy on a regular basis to not only oversee the use of requisite processes for garbage disposal at Achen landfill site but will also encourage development of mini conversion plants in the private sector. Sorting of solid waste at various levels during

the pre-lifting phase will be a pre-requisite for reduction of waste for final landfill. A huge amount of literature on all these issues is also sought to be developed for the information and soliciting cooperation from the citizens in a regular manner so that a coordinated campaign is launched to control the menace of ever increasing solid waste generated by the public on a daily basis. Educating the citizens and those running the public institutions as well as commercial organizations particularly in the health and industrial sectors, is also expected to result in full compliance with the Bio-medical waste( management and handling) Rules 1998, as well as the Hazardous Waste (management, handling and transborder movement) Rules, 2008.

After ensuring complete observance of the rules governing generation, collection and disposal of solid waste by both the citizens and the municipal bodies, an ideal management cycle of the municipal solid waste that would emerge is shown in Figure-2, as follows.

**Figure – 2**

The diagram of an acceptable waste management cycle in the municipal areas of J&K State





In developed societies this system has achieved some prominence and the research done in this field has helped design safe pits to control adverse impacts on ground water and prevent migration of leachate. Other improvements include utilization of methane gas for electricity generation and more successful management of sites of landfill after the pits are filled up and closed, for another 20 to 25 years to ensure complete biodegradability of waste and the subsequent reclamation of land for horticulture or agriculture purposes. The scientifically and environmentally approved practices are a sure means to control leachate, foul odour, mosquito breeding, bird hovering menace, land degradation and ground water contamination.

However these practices are likely to substantially increase the land filling costs and impose financial burden upon the local authorities. Therefore the bulk of this increased cost shall have to be met by the public to help local bodies to provide quality services to the people, reduce risks to health and protect the environment. This may require some change in the relevant legislation to elicit public cooperation in adhering to the norms of waste management, fixing of targets in the area of waste reduction and recycling, prohibiting co-disposal of household waste and commercial toxic waste or bio-medical waste. Provision of municipal service charges on households as well as commercial and non-commercial establishments has therefore to be an important part of the programme.

For the safety of our human habitations it is necessary to fix sanitation standards for each particular locality, households and individuals and also define the role of each as an important agent of the society. Like in developed societies , progress in education, economic development and sharing of a higher degree of responsibility by the citizens shall lead to setting up of better sanitation standards in the public life fostering more and more public cooperation. The demand for better services, what in recent terminology is described as the 'best value approach' is the outcome of these and remains the most valuable tool to ensure continual improvement in the quality of life.

The habit of paying for the services and the desire for a better deal will open the door for the private sector to come in with the aim of improving efficiency at a lower cost as the private sector is always equipped with better technology and equipment particularly in the setting up of recycling and compost/conversion plants to make a profitable use of waste. A good cost recovery prospect is sufficient to induce private entrepreneurs to venture into this field.

Training of personnel is last, but not the least, required to be adopted as part of our endeavour to keep up with the advancement in methods of waste management at the national level. The personnel deployed on waste collection and disposal

operations are supposed to be the men of skills regularly aiming at continual improvements in this operation to enhance efficiency, increase output and improve the quality of services. Use of newer techniques in waste collection, sorting and disposal need the skills of the staff to be kept in tune with the latest technology. For this purpose, both for the existing staff and newly recruited people, a better tie up with advanced states/Institutions for arranging proper training as part of full-fledged R&D programme shall be required to form an essential part of the functioning of the local body institutions.

Real time sanitation has been seen as dependent upon the effective role and proper functioning of the U.E.E.D and its sewerage and drainage wing which functions continue to be outside the local govt. control pending full scale empowerment of the local body institutions. Faulty sewerage systems, plenty of surface drains overflowing and intercepting with potable water supply lines both in city and the rural areas and discharge of untreated sewerage into the water bodies have of late been causing concern to the Health Deptt. of the State as the rush of patients with water borne diseases is increasing. We have so far witnessed the spread of Hepatitis-C virus in some areas of Kokernag area of Anantnag district taking a heavy toll of the otherwise sound health of the rural population who are now on a large scale afflicted with the disease. Visits by NGOs and some senior medical experts have reported that due to the use of contaminated water for years this disease has assumed dangerous proportions and is slowly turning into severe liver

infections in a large segment of the rural population estimated about 20% in this area alone.

Monitoring of water quality in urban areas as well has become a very urgent necessity lest the water borne diseases assume epidemic proportions. Only the other day (August 2013) village Brackpora in Anantnag District reported over three hundred cases of diahorrea due to use of contaminated water supplied through the departmental service lines. The health authorities immediately recommended suspension of water supply by these lines as they suspected a source contamination after water samples tested positive for very high levels of coliform count. The responsibility of maintaining high levels of sanitation around the water bodies or streams out of which drinking water is supplied after tapping the same directly therefore vests with the PHE Deptt. of the State and local bodies do not have much of a say in these matters.

Similarly in the matter of food sanitation, ecological sanitation, environmental sanitation different agencies other than the local govts. have a role to play to avoid horizontal spread of disease due to growth of bacteria. And failure on the part of these agencies to remove deficiencies in the standards of sanitation can take a heavy toll of human life in the shape of very high infant and child mortality particularly in this part of the underdeveloped world.

Dog menace is yet another issue that has been seriously interfering with the sanitation efforts of the local bodies in the state. A recent survey (2012) has put the figure in Srinagar Municipal Corporation (SMC) area alone at above 90,000 and these are mostly concentrated around waste bins on the road sides in the municipal area. Legal issues aside the reduction of this menace would be possible by setting up a chain of dog pounds to which these stray dogs could be shifted pending castration procedure to be performed on the males of them to attempt a stop on their further proliferation.

Canine bites particularly of the children and the elderly who cannot easily escape following chasing by an angry dog has been in the recent past as well as today causing heavy damage to the otherwise efficient working image of the municipal bodies in the state. The problem has become acute and incidents of dog bites are so frequent that the Health Deptt. had to set up a 24X7 chain of centres in every hospital at State, District and Tehsil level to cater to the rush of cases of injuries due to attack by the dogs. A serious attempt to place stray dogs in pounds at safer places outside municipal limits would drastically reduce chances of canine attacks on humans and help restore safety of human beings venturing on roads otherwise blocked by huge contingent of dogs particularly during early hours which is school going time for the children

and evening hours when it is not possible to site a group of canines from a distance to escape any attack or encounter.

A couple of NGOs from the valley have also approached the Hon'ble High Court with a PIL to seek remedy on the ever increasing danger to human lives owing to a disproportionate increase in the canine population and their concentration on the important public places like bus stands, shopping places and road crossings where people have every chance of falling a prey to these stray dogs. It would therefore be a fitting relief to the common man especially the pedestrian poor if gradual reduction of dog population in urban areas is resorted to by shifting them to animal enclosures to be erected outside municipal limits and a proper follow-up done as well to control their ever increasing numbers. This would also take care of the sanitation issues arising out of animal carcasses lying on the main roads unattended to for days together till a very serious obnoxious smell takes over the area and crossing of the road at that spot becomes impossible. This would equally deal with the spread of animal faeces in lanes and by lanes of the city and urban areas making a mockery of the so-called claims of total sanitation by the local body institutions. Since animals particularly the menacing dog population has been playing a spoilsport with the sanitation of the urban areas, the local body institutions are under an obligation to have a clear-cut and strong policy to combat this problem on a regular basis together with other measures to ensure perfect on site sanitation. This demonstration of commitment to safety and

well being of the people will popularise the local body institutions and give them due recognition among the hearts and minds of the people who can certainly trust them with demand for better services by offering a higher value in the shape of municipal service charges in lieu of such services.

# **Annexures**



